

209.1 - X-Ray Diffraction (powder and solid forms)

SRMs 656, 676a, 674b, 1878a and 1879a consist of high phase purity materials for use in the quantitative analysis of samples by the internal standard method. SRM 656 consists of 2 silicon nitride powders, one high in a, the other high in b. SRMs 640d, 660b, 675, and 1976a consist of materials with select crystallographic and microstructure properties used in the evaluation of diffraction equipment for the following variables; 1) d-spacing or line position, 2) line or instrument intensity, and 3) instrumental or sample contributions to the shape of reflection profiles. SRM 1976a, a sintered alumina plate, is also certified with respect to lattice parameters as well as 13 relative intensity values from 22° to 155° 2 θ (Cu K α). SRM 1990 is certified for lattice parameter. SRM 1994 is certified for miss orientation of the crystal axis relative to the surface normal.

Technical Contact: james.cline@nist.gov

Technical Contact: eric.benck@nist.gov for SRM 1994

PLEASE NOTE: The tables are presented to facilitate comparisons among a family of materials to help customers select the best SRM for their needs. For specific values and uncertainties, the certificate is the only official source.

SRM	640d	656	660b	674b	675	676a	1878a	1879a	1976a	1990	1994	1995
Description	Silicon Powder Line Position + Line Shape Std for Powder Dif	Silicon Nitride Powders for Quantitative Analysis	Line Position and Line Shape, Std for Powder Diffraction	X-Ray Powder Diffraction, Intensity Set Quant Analysis	Line Position, Mica (XRD)	Alumina Powder for Quantitative Analysis by X-ray Diffraction	Respirable Alpha Quartz	Respirable Cristobalite	Instrument Response Std for X-Ray Powder Diffraction	Lattice Parameter/Single, Crystal (Ruby Spheres)	Standard Silicon Single Crystal Wafer for Crystalline Orientation	Standard Sapphire Single Crystal Wafer for Crystalline Orientation
Unit Size	(7.5 g)	(2 x 10 g)	(6 g)	(10.00 g (powder))	(7.5 g)	(20 g)	(5 g)	(5 g)	(1 disc)	(3 spheres)	(100-mm wafer)	(50-mm wafer)

XRD Application	Line Position Line Shape	Quantitative Analysis	Line Position Line Shape	Quantitative Analysis	Line Position - Low 2 θ	Quantitative Analysis	Quantitative Analysis	Quantitative Analysis	Instrument Response	Quantitative Analysis	Crystalline Orientation	Crystalline Orientation
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2000

Calibration
Standard for
High-Resolution
X-Ray Diffraction
(1 block)

Line Position

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